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Travelling crossflow vortices in the Bödewadt boundary layer NATALIE CULVERHOUSE, SHARON STEPHEN, University of Birmingham — Recent experiments studying the boundary layer over a stationary plane where fluid in the far-field is rotating (the Bödewadt layer) have used rotor-stator devices and spin-down methods to successfully show travelling instabilities with the presence of crossflow vortices. The boundary layer structure is investigated analytically for large Reynolds numbers using an asymptotic approach. Eigenrelations are derived for neutral stability modes and given a specific wave speed the radial and azimuthal wavenumbers are determined. Some limiting cases of these solutions are analysed to show the physical nature of the flow at these points.

Sharon Stephen
University of Birmingham

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